



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 29

[Docket No. FAA-2020-0495; Special Conditions No. 29-049-SC]

Special Conditions: Leonardo S.p.A. (Leonardo), Model AW169; Use of 30-Minute All Engines Operating (AEO) Power Rating

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Leonardo Model AW169 helicopter.

This model helicopter will have the novel or unusual design feature associated with a 30-minute all engines operating (AEO) power rating. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is [INSERT DATE 15 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]. The FAA must receive your comments by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Send comments identified by docket number FAA-2020-0495 using any of the following methods:

- **Federal eRegulations Portal:** Go to <http://www.regulations.gov> and follow the online instructions for sending your comments electronically.

- Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC 20590-0001.
- Hand Delivery of Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: Fax comments to Docket Operations at 202-493-2251.

Privacy: The FAA will post all comments it receives, without change, to <http://regulations.gov>, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the *Federal Register* published on April 11, 2000 (65 FR 19477-19478), as well as at <http://DocketsInfo.dot.gov>.

Docket: Background documents or comments received may be read at <http://www.regulations.gov> at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Rao Edupuganti, Regulations and Policy Section, AIR-681, Rotorcraft Standards Branch, Policy & Innovation Division, Aircraft Certification Service, 10101 Hillwood Parkway, Fort Worth, Texas 76177; telephone (817) 222-4389; facsimile (817) 222-5961.

SUPPLEMENTARY INFORMATION:

Reason for No Prior Notice and Comment Before Adoption

The FAA has determined, in accordance with 5 U.S.C. 553(b)(3)(B) and 553(d)(3), that notice and opportunity for prior public comment hereon are unnecessary because substantially identical special conditions have been previously subject to the public comment process in several prior instances such that the FAA is satisfied that new comments are unlikely. For the same reason, the FAA finds that good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment.

Special Conditions Number	Company and Helicopter Model
No. 29-037-SC ¹	Airbus Helicopters Deutschland GmbH Model MBB-BK117 D-2
No. 29-034-SC ²	AgustaWestland Model AW189
No. 29-011-SC ³	Sikorsky Aircraft Corporation Model S-92A
No. 29-004-SC ⁴	Sikorsky Model S76C

Comments Invited

While the FAA did not precede these special conditions with a notice of proposed special conditions, the FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

¹ 79 FR 78694, December, 31, 2014

² 79 FR 54889, September 15, 2014

³ 67 FR 65871, October 29, 2002

⁴ 63 FR 32972, June 17, 1998

The FAA will consider all comments received by the closing date for comments. The FAA will consider comments filed late if it is possible to do so without incurring expense or delay. The FAA may change these special conditions based on the comments received.

Background

On August 20, 2019, Leonardo applied for FAA validation of its change to Type Certificate (TC) No. R00007RD for a 30-minute AEO power rating for the Model AW169 helicopter. The Model AW169 is a Transport Category, twin engine helicopter designed for civil operations. This model has a 10 seat capacity and is type certificated as a Category A rotorcraft under instrument flight rules for both single and dual pilot configurations. It is powered by two Pratt & Whitney Canada Model PW210A engines.

Leonardo proposes that the Model AW169 include the use of a novel and unusual design feature, which is a 30-minute AEO power rating. The 30-minute AEO power rating is generally intended to be used for hovering at increased power for search and rescue missions. 14 CFR 1.1 defines “rated takeoff power” as limited in use to no more than 5 minutes for takeoff operation. The use of takeoff power for 30 minutes will require special airworthiness standards, known as special conditions, to address the use of this 30-minute AEO rating and its effects on the rotorcraft. These special conditions will add requirements to the existing airworthiness standards in 14 CFR 29.1049 (Hovering cooling test procedures), § 29.1305 (Powerplant instruments), and § 29.1521 (Powerplant limitations).

Type Certification Basis

Under 14 CFR 21.101, Leonardo must show that the Model AW169 helicopter, as changed, continues to meet the applicable provisions of the regulations incorporated by reference in TC No. R00007RD or the applicable regulations in effect on the date of application for the

change. The regulations incorporated by reference in the TC are commonly referred to as the “original type certification basis.” The regulations incorporated by reference in TC No.

R00007RD are as follows:

14 CFR part 21.29.

14 CFR part 29 Amendment 29-1 through 29-52, dated March 30, 2010.

14 CFR part 36 appendix H, Amendment 36-1 through 36-28, dated March 11, 2013.

14 CFR part 29 Amendment 29-1 through 29-55 only for Hoist Installation.

Equivalent Level of Safety Findings issued against:

- (a) 14 CFR 29.807(c) Emergency Exits Access (documented in ELOS Memo TC4266RD-R-C-01).
- (b) 14 CFR 29.813(c) Passenger access to each emergency exit (documented in ELOS Memo TC4266RD-R-C-02).
- (c) 14 CFR 29.811(c) Emergency exit marking (documented in ELOS Memo TC4266RD-R-C-03).
- (d) 14 CFR 29 Subpart B, 29.1305, 29.1549 “Engine Training Mode” (documented in ELOS Memo TC4266RD-R-F-01).
- (e) 14 CFR 29.1545(b)(4) Airspeed indicator green arcs (documented in ELOS Memo TC4266RD-R-F-02).
- (f) 14 CFR 29.1305 and 29.1549 Power Index (documented in ELOS Memo TC4266RD-R-F-06).

In addition to the applicable airworthiness regulations and special conditions, the Leonardo Model AW169 helicopter must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Regulatory Basis for Special Conditions

The Administrator has determined that the applicable airworthiness regulations (that is, 14 CFR part 29) do not contain adequate or appropriate safety standards for the Leonardo Model AW169 helicopter because of a novel or unusual design feature. Therefore, special conditions are prescribed under the provisions of 14 CFR 21.16.

The FAA issues special conditions, as defined in § 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should the TC for that model be amended later to include any other model that incorporates the same novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

Novel or Unusual Design Features

The Leonardo Model AW169 helicopter will incorporate the following novel or unusual design feature:

- A 30-minute AEO power rating.

Discussion

The following is a summary of the final special conditions:

(a) In addition to the requirements of § 29.1049, the aircraft cooling effects due to the use of the 30-minute AEO power rating versus the Takeoff (5-minute) rating must be accounted for in the testing.

(b) In addition to the requirements of § 29.1305, since this new 30-minute AEO power rating has a time limit associated with its use, the pilot must have the means to identify:

- (1) When the rated engine power level is achieved,

- (2) When the event begins,
- (3) When the time interval expires, and
- (4) When the cumulative time in one flight is reached.

(c) In addition to the requirements of § 29.1521, this new 30-minute AEO power rating must be limited to not more than 30 minutes per use. This new rating will allow the use of power above maximum continuous power (MCP) for 30 minutes.

(d) Furthermore, the Model AW169 rotorcraft flight manual must include limitations on the use of the 30-minute AEO power rating, which states that continuous use above MCP takeoff power is limited to 30 minutes.

Applicability

These special conditions are applicable to the Leonardo Model AW169 helicopter. Should Leonardo apply at a later date for an amendment to the TC to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of helicopters. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 29

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701-44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Leonardo Model AW169 helicopter. Unless stated otherwise, all requirements in §§ 29.1049, 29.1305, and 29.1521 remain unchanged.

Section 29.1049, Hovering cooling test procedures. In addition to the requirements of this section, for rotorcraft with a 30-minute all engines operating (AEO) power rating, the hovering cooling provisions at the 30-minute AEO power rating must be shown—

(a) At maximum weight or at the greatest weight at which the rotorcraft can hover (if less), at sea level, with the power required to hover but not more than the 30-minute power, in the ground effect in still air, until at least 5 minutes after the occurrence of the highest temperature recorded, or until the continuous time limit of the 30-minute AEO power rating if the highest temperature recorded is not stabilized before.

(b) At maximum weight and at the altitude resulting in zero rate of climb for this configuration, until at least 5 minutes after the occurrence of the highest temperature recorded, or until the continuous time limit of the 30-minute AEO power rating if the highest temperature recorded is not stabilized before.

Section 29.1305 Powerplant instruments, at Amendment 29-40. In addition to the requirements of this section, for rotorcraft with a 30-minute AEO power rating, a means must be provided to alert the pilot when the engine is at the 30-minute power level, when the event begins, when the time interval expires, and when the cumulative time in one flight is reached.

Section 29.1521 Powerplant limitations, at Amendment 29-41. In addition to the requirements of this section, the use of the 30-minute AEO power must be limited to not more than 30 minutes per use. The use of the 30-minute power must also be limited by:

- (1) The maximum rotational speed, which may not be greater than—
 - (i) The maximum value determined by the rotor design; or
 - (ii) The maximum value demonstrated during the type tests;
- (2) The maximum allowable turbine inlet or turbine outlet gas temperature (for turbine engines);
- (3) The maximum allowable power or torque for each engine, considering the power input limitations of the transmission with AEO;
- (4) The maximum allowable power or torque for each engine considering the power input limitations of the transmission with one engine inoperative;
- (5) The time limit for the use of the power corresponding to the limitations established in paragraphs (1) through (4) above; and
- (6) The maximum allowable engine and transmission oil temperatures, if the time limit established in paragraph (5) above exceeds 2 minutes.

Issued in Fort Worth, Texas on May 5, 2020.

Jorge Castillo
Manager, Rotorcraft Standards Branch, AIR-680
Policy & Innovation Division
Aircraft Certification Service
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